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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,008	01/08/2004	Raghavan Charudattan	UF-289C2	7738
23557 7590 11/15/2007 SALIWANCHIK LLOYD & SALIWANCHIK A PROFESSIONAL ASSOCIATION PO BOX 142950 GAINESVILLE, FL 32614-2950			EXAMINER BROOKS, KRISTIE LATRICE	
			ART UNIT 1616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/755,008</p>	<p>Applicant(s)</p> <p align="center">CHARUDATTAN ET AL.</p>	
	<p>Examiner</p> <p align="center">Kristie L. Brooks</p>	<p>Art Unit</p> <p align="center">1616</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 21,22,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20,23-29 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-32 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date <u>04/19/04</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|--|---|

DETAILED ACTION

1. Applicant's election of species of injuring a plant by dragging a carpet in the reply filed on July 26, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 21-22 and 30-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Status of Application

2. Claims 1-32 are pending.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-20,23-29 and 32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of US Patent 6,689,718.

Claims 1-20,23-29 and 32 of the instant invention are drawn to a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer.

Claims 1-7 of US Patent 6,689,718 are drawn to a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of: (a) obtaining an inoculation solution comprising Tobacco Mild Green Mosaic Virus, buffer and water; said obtaining step comprising extracting said virus from vacuum-dried host plant tissue by trituration; and (b) applying said inoculation solution to the adaxial surface of the leaves of said tropical soda plant by sprayer application.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the steps of obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and applying said inoculation suspension to a few

leaves of the tropical soda plant by manual inoculation. The instant invention differs from the cited patent by citing said obtaining step comprising extracting said virus from vacuum-dried host plant tissue by triturating in the cited patent. However, claim 6 of the cited patent allows for triturating of said host tissue in a buffer which would encompassed by the extraction step of the instant claims. Therefore, both applications are directed to similar subject matter wherein they both encompass obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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6. Claims 1-3 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petterson et al. (Tobacco mild mosaic virus (TMGMV) induces a lethal response in tropical soda apple (*Solanum viarum* Dunal), *Phytopathology*, June 2001, vol. 91, No. 6 supplement, pp.S71-72) in view of Sanford et al (US 5,036,006).

Applicant claims a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer application.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Petterson et al. teach Tobacco mild green mosaic virus (TMGMV), a tobarnovirus, causes an unusual virus-host interaction in the noxious weed, tropical soda apple (TSA) that is characterized by a lethal systemic hypersensitive response (HR). Total mortality occurred in TSA plants <30-d to >1-yr old. In plants maintained at 18degreeC and diurnal high/low temperature (32/22degreeC), TMGMV also caused 100% mortality. At 32degreeC, inoculated TSA plants remained symptomless, but 5-6 days after they were transferred to 25degreeC, an attenuated systemic HR ensued.

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Among 32 solanaceous species screened against TMGMV in a host-range study, 6 species developed localized HR and 2 developed systemic HR without a high level of mortality. In field trials, TMGMV caused 83-97% mortality of TSA plants inoculated either by hand or with a CO2 backpack sprayer. Thus, TMGMV appears to be an effective biological control agent of TSA. More importantly, the TSA-TMGMV system is a model for investigating possible novel modes of bioherbicidal action.

Sanford et al. teach a widely applicable mechanism for transporting particles, which can comprise or be associated with biological substances, into living cells of plants, for example (see the entire article, especially column 4 lines 1-9; column 8 lines 44-52). An example of a biological substance includes viruses (see the entire article, especially column 8 lines 29-34). In Example 5, delivery of biologically active viral RNA to non-host cells and tissue is demonstrated by isolating RNA from TMV (tobacco mosaic virus) strain U1 by standard procedures and the RNA being adsorbed to the surface of tungsten projectiles prior to their use for bombardment of *A. cepa* cells (see the entire article, especially column 15 lines 61-68). To confirm the virus particles, were present in the samples bombarded with RNA coated projectile, sections of bombarded tissue were ground in phosphate buffer and the resulting suspension was spread over the leaves of tobacco plants hypersensitive to the plants (see the entire article, especially column 16 lines 59-65).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Petterson et al. do not teach applying an inoculation suspension of TMGMV to the leaves of the tropical soda apple plant as claimed by Applicant.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply an inoculation suspension of the TMGMV.

One of ordinary skill in the art would have been motivated to do this because Petterson et al. teach mortality in tropical soda apple plants inoculated with TMGMV. Although Petterson et al. do not teach an inoculation suspension it would be obvious to one of ordinary skill in the art because when transporting substances such as viruses into living cells or tissues of plants, it is common to prepare an inoculation suspension of the virus to spread over the leaves of plants hypersensitive to the virus as suggested by Sanford et al. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

7. Claims 4-8 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petterson et al. (Tobacco mild mosaic virus (TMGMV) induces a lethal response in tropical soda apple (*Solanum viarum* Dunal), *Phytopathology*, June 2001, vol. 91, No. 6

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supplement, pp. S71-72)in view of Sanford et al (US 5,036,006), further in view of Zaitlin et al (US 5,596,132).

Applicant claims a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer application.

Determination of the scope and content of the prior art

(MPEP 2141.01)

The disclosure of Petterson et al. has been set forth above. Specifically Petterson et al. teach inoculating tropical soda apple, a noxious weed, with the Tobacco mild green mosaic virus (TMGMV), which causes a lethal systemic hypersensitive response (HR) in the TSA.

The disclosure of Sanford et al. has been set forth above. Specifically Sanford et al. teach transporting virus particles into living cells of plants.

Zaitlin et al. (US 5,596, 132) teach a virus induced resistance which may be transferred from one plant generation to another (see the entire article, especially the abstract and column 1 lines 49-51). In Example I, the culture and maintenance of plant

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and plant viruses is shown. TMV strain U1 was purified from infected *N. tabacum* cv. Turkish Samsun plants. Virus RNA was isolated by phenol extraction and ethanol precipitation. *N. tabacum* cv. Xanthi nn was used as a TMV susceptible, systemic host and *N. tabacum* cv. Xanthi nc as a local lesion host. In Example 6, inoculation of leaves of the plants were accomplished with TMV-U1 RNA in phosphate buffer spread over the leaves (see the entire article, especially column 9 lines 43-58).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Petterson et al. do not teach extracting Tobacco Mild Green Mosaic Virus from host plant tissue, filtering the extraction and freezing the filtered extraction as claimed by Applicant. Petterson et al do not teach the host plant being a tobacco plant susceptible to Tobacco Mild Green Mosaic Virus, such as *Nicotiana tabacum* or diluting the extraction with the buffer prior to application on the tropical soda apple plants as claimed by Applicant.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention was made to extract Tobacco Mild Green Mosaic Virus from *Nicotiana tabacum* , filter the extraction, freezing the filtered extraction and diluting the extraction with the buffer prior to application on the tropical soda apple plants.

One of ordinary skill in the art would have been motivated to do this because it is Zaitlin et al. suggest procedures for isolating viruses, such as a TMV strain U1 from infected *N. tabacum* plants (a TMV susceptible host), and diluting the extracted virus with buffer to inoculate the virus onto non-host plants. Thus, it would be obvious to one of ordinary skill in the art because it is a known procedure to isolate viruses to transfer to non-host plants. Furthermore, freezing the filtered extraction would be obvious to one of ordinary skill because to store the virus for future use, freezing the extraction would be a suitable option to one of ordinary skill. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

8. Claims 18-19 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petterson et al. (Tobacco mild mosaic virus (TMGMV) induces a lethal response in tropical soda apple (*Solanum viarum* Dunal), *Phytopathology*, June 2001, vol. 91, No. 6 supplement, pp.S71-72) in view of Sanford et al (US 5,036,006), further in view of Johnson, Jr. et al. (US 6,060,430).

Applicant claims a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation

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suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer application.

Determination of the scope and content of the prior art

(MPEP 2141.01)

The disclosure of Petterson et al. has been set forth above. Specifically Petterson et al. teach inoculating tropical soda apple, a noxious weed, with the Tobacco mild green mosaic virus (TMGMV), which causes a lethal systemic hypersensitive response (HR) in the TSA.

The disclosure of Sanford et al. has been set forth above. Specifically Sanford et al. teach transporting virus particles into living cells of plants.

Johnson, Jr. et al. teach a method of enhancing the control of monocotyledonous and dicotyledonous plant species comprising applying to said plant species a combination of optically active R-imidazolinone compounds (see the entire article, especially the abstract). In Example 8, R-isomers of Imidazolinone compounds were applied to IT (Imidazolinone Tolerant) Corn with a tractor mounted sprayer at a pressure of 35 to 45 psi (see the entire article, especially column 17 and 18, Example 8).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Petterson et al. do not teach the spray application provided at a pressure of 400 p.s.i or less as claimed by Applicant. Petterson et al. do not teach the spray application provided where the sprayer is operated from a vehicle as claimed by Applicant.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to spray at a pressure of 400 p.s.i or less, wherein the sprayer is operated from a vehicle as claimed by Applicant.

One of ordinary skill in the art would have been motivated to do this because Johnson et al. applying herbicides using a backpack or vehicle at a pressure of 35-45 p.s.i. Thus, it would be obvious to one of ordinary skill in the art because spraying compounds at a pressure of 400 p.s.i. to control weeds is readily known and suggested by Johnson, Jr. et al. Furthermore, the pressure at which the compounds are sprayed would be obvious because in absence to the contrary, one of ordinary skill would have employed the spray application at any pressure suitable for herbicide application. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

9. Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petterson et al. (Tobacco mild mosaic virus (TMGMV) induces a lethal response in

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tropical soda apple (*Solanum viarum* Dunal), *Phytopathology*, June 2001, vol. 91, No. 6 supplement, pp. S71-72), in view of Sanford et al (US 5,036,006), further in view of Burnside (4,223,479).

Applicant claims a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer application.

Determination of the scope and content of the prior art
(MPEP 2141.01)

The disclosure of Petterson et al. has been set forth above. Specifically Petterson et al. teach inoculating tropical soda apple, a noxious weed, with the Tobacco mild green mosaic virus (TMGMV), which causes a lethal systemic hypersensitive response (HR) in the TSA.

The disclosure of Sanford et al. has been set forth above. Specifically Sanford et al. teach transporting virus particles into living cells of plants.

Burnside teaches applying herbicide to weeds extending above a crop, a nylon carpet on the cylinder of the roller application where it contacts weeds and is rotated in

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the opposite direction as the tractor through a field, while a moisture sensor is spaced from the applicator on the roller and controls the amount of herbicide applied to the weed (see the entire article, especially the abstract and column 1 lines 1-14).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Petterson et al. do not teach injuring the tropical soda plants by dragging a carpet over the plants as claimed by Applicant.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to drag a carpet over the plants.

One of ordinary skill in the art would have been motivated to do this because Burnside suggests rolling a carpet over weeds in a field with a herbicidal applicator attached. Thus, it is obvious to one of ordinary skill in the art since it is readily known and suggested by Burnside to injure plants by rolling a carpet weeds prior to application with herbicides. Furthermore, in absence of evidence to the contrary, one of ordinary skill would have employed any method to injure the plants. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petterson et al. (Tobacco mild mosaic virus (TMGMV) induces a lethal response in tropical soda apple (*Solanum viarum* Dunal), *Phytopathology*, June 2001, vol. 91, No. 6 supplement, pp. S71-72), in view of Sanford et al (US 5,036,006), in view of Detweiler et al. (US 6,022,828).

Applicant claims a method of inducing lethal hypersensitive response in tropical soda apple plants comprising the steps of (a) obtaining an inoculation suspension comprising Tobacco Mild Green Mosaic Virus and (b) applying said inoculation suspension to a few leaves of the tropical soda plant by manual inoculation or sprayer application.

Determination of the scope and content of the prior art
(MPEP 2141.01)

The disclosure of Petterson et al. has been set forth above. Specifically Petterson et al. teach inoculating tropical soda apple, a noxious weed, with the Tobacco mild green mosaic virus (TMGMV), which causes a lethal systemic hypersensitive response (HR) in the TSA.

The disclosure of Sanford et al. has been set forth above. Specifically Sanford et al. teach transporting virus particles into living cells of plants.

Detweiler et al. US 6,022,828 teach controlling a weed, *Poa trivialis* using a bacterium *Xanthomonas campestris* pathovar (see the entire article, especially the abstract). Example 1 investigate the use of the bacterium and its ability to control *Poa trivialis*, a common weed. *Poa trivialis* was placed into plots, plots were mowed on a daily basis just before treatments were applied by a nitrogen backpack sprayer (see the entire article, especially column 3 lines 24-31 and column 4 lines 1-5).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Petterson et al. do not teach injuring the tropical soda prior application of inoculation suspension by a backpack sprayer as claimed by Applicant.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to injure the tropical soda prior application of inoculation suspension by a backpack sprayer.

One of ordinary skill in the art would have been motivated to do this because

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Detweiler et al. suggests mowing on a daily basis just before treatments of herbicides are applied by a backpack sprayer. Thus, it is obvious to one of ordinary skill in the art because injuring plants prior to application of herbicidal compounds with a backpack sprayer is readily known and suggested by Detweiler et al. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references.

Conclusion

11. No claims are allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie L. Brooks whose telephone number is (571) 272-9072. The examiner can normally be reached on M-F 8:30am-6:00pm Est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KB



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